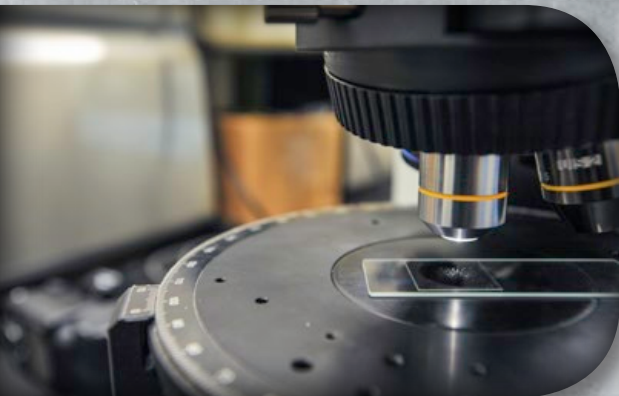
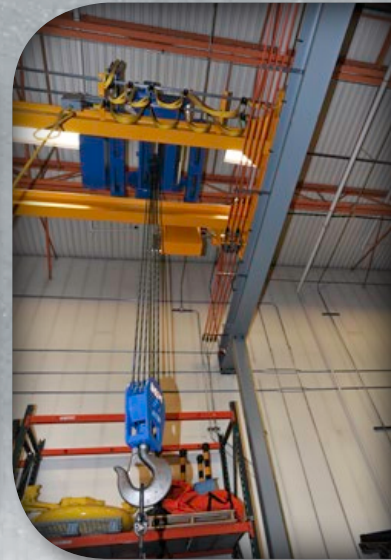




309TH MAINTENANCE SUPPORT GROUP

HILL AIR FORCE BASE, UTAH

Providing state-of-the-art testing, verification, calibration, rapid manufacturing and 3D rapid prototyping as well as world-class infrastructure, equipment, and tool management



309TH MAINTENANCE SUPPORT GROUP OVERVIEW

The 309th Maintenance Support Group's (MXSG) educated and experienced workforce, employing sophisticated laboratories and equipment, provides scientific, Precision Measurement Equipment Laboratory (PMEL), and engineering support for DoD and U.S. Government activities worldwide. MXSG is proud to offer skilled 3D scanning, rapid prototyping, and rapid manufacturing. The Maintenance Support Group also performs facility engineering and management, as well as preventive and predictive maintenance of industrial plant equipment and real property installed equipment. MXSG is AS9100/AS9110 certified, cert#: 13714 and 13714/1, throughout all Squadrons.



**MATERIAL SCIENCE
LABORATORY**

PRECISE SUPPORT FOR YOUR REQUIREMENTS

- Material science laboratory
- Nondestructive Inspection (NDI)
- 40-foot × 25-foot CT scanning
- Whole-aircraft Radar Cross Section (RCS) facility
- 3D Scanning and rapid prototyping
- Rapid manufacturing
- Verification and First Article Test (FAT)
- Chemical analysis laboratory
- Precision Measurement Equipment Laboratory (PMEL)
- Facility engineering and plant management
- Organic tool control program
- Wood shop
- Patterns, signs, and welding

PLANT MANAGEMENT



METROLOGY AND CALIBRATION



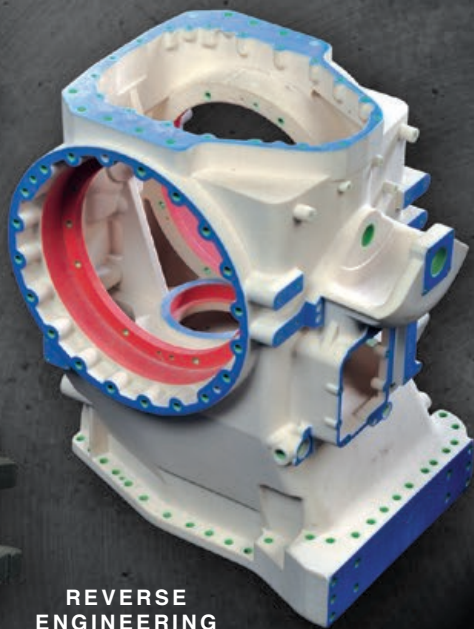
RAPID PROTOTYPING



**3D PROTOTYPE
CONSTRUCTION**



**REVERSE
ENGINEERING**



NEW TECHNOLOGY: 3D SCANNING AND RAPID PROTOTYPING

- Reverse engineering
- CT scanning capability, 3D model of interior and exterior of item can be created
- Design parts that lack engineering drawings
- Multi-colored prototype construction
- Virtual testing on prototype designs
- Digital model development
- 3D models from 2D drawings
- 3D parts inspection – capture, align, and compare
- Digital analysis
- Product scanning for exact geometry to create custom packaging
- Digital archiving – store tooling, samples, and prototypes
- Customized fit creation
- Mold design for metal castings
- Visualization
- Simulations
- Educational model development
- Digital mockups
- Holding fixture and shim design

**PORTABLE
3D SCANNING**

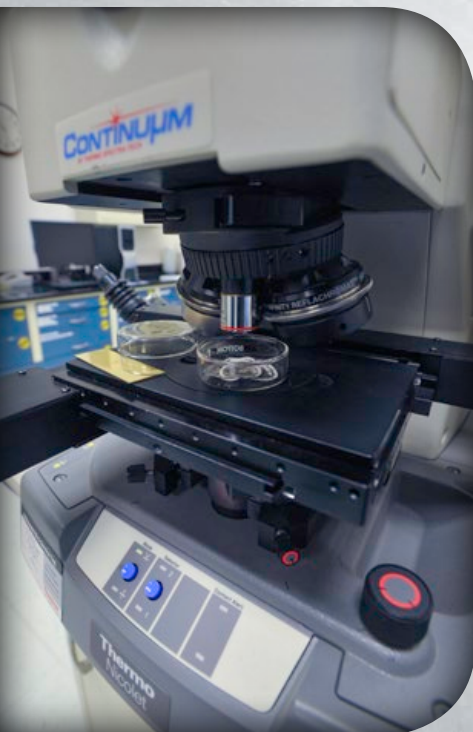


RAPID LOCAL MANUFACTURING

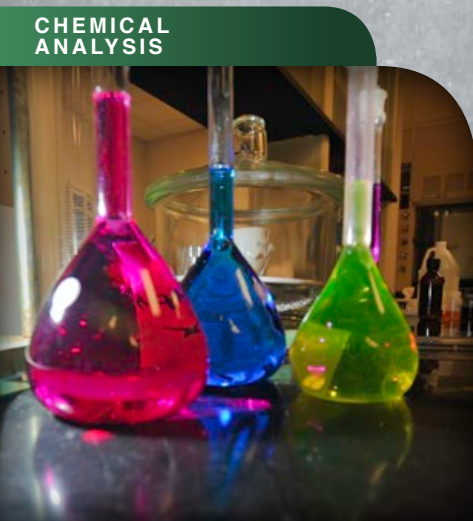
- Ensuring the availability of mechanical and structural aircraft components
- Controls to ensure original design intent
- New technology to resolve material shortages
- Processes to improve schedule and quality and reduce cost



**ENVIRONMENTAL
SAMPLE ANALYSIS**



**ASBESTOS CONTENT
DETERMINATION**



**CHEMICAL
ANALYSIS**



OSHA EXPANDED STANDARDS TESTING

ADVANCED SCIENCE AND ENGINEERING LABORATORY

Chemical Analysis Laboratory

ENVIRONMENTAL SAMPLE ANALYSIS

- EPA and State of Utah approved methods of analysis
- Certified by National Environmental Laboratory Accreditation Council (NELAC)
- OSHA expanded standards analysis for Chromium VI and Cadmium
- Statistically verified analysis on hazardous waste

ANALYTICAL CHEMICAL ANALYSIS

- Aircraft fuels, hydraulic fluids, and oils for particles, water content, and other contamination
- Organic and inorganic substances using gas chromatography, ion chromatography, fourier transform infrared spectrometry, microscopy and standard wet chemistry
- Breathing air oxygen, argon and other gases for contamination
- Qualitative analysis of unknown substances

SHELF-LIFE TESTING

- Extension of expiration dates
- DLA certified for testing adhesives, coatings, paints, chemicals, O-rings and sealants from any DoD organization

PLATING SOLUTION ANALYSIS

- Extensive analytical support providing solution stability and constituent values
- Direct support of aircraft component plating operations
- Hydrogen embrittlement and corrosion testing

JOINT OIL ANALYSIS PROGRAM (JOAP) ANALYTICAL SUPPORT OF DEPOT AND TRANSIENT AIRCRAFT FLUIDS

ASBESTOS CONTENT DETERMINATION USING EPA AND NIOSH APPROVED TECHNIQUES

- Analysis for asbestos in air and bulk samples



DC, AC, AND FREQUENCY MEASUREMENTS

SCIENTIFIC SOLUTIONS FOR YOUR TECHNICAL REQUIREMENTS

Material Science Laboratory

- Failure analysis and compositional characterization
- Energy dispersive and atomic emission spectroscopy
- Tensile testing up to 134,000 lbf capacity
- High and low temperature tensile and compression testing
- Strain, fatigue, and compression testing
- Electron Spectroscopy for Chemical Analysis (ESCA)

Verification

- First Article Test (FAT)
- Random sampling, OSI, and fraud investigations
- Conformance Verification Program (CVP)
- Dimensional inspection for the FAT, Quality Verification Center (QVC) and CVP
- Coordinate measuring
- Roundness accurate to .0001 of an inch



UNIVERSAL TESTING

- Welding process evaluation and certification
- Mechanical testing
- Auger spectroscopy
- New product development
- Metallographic examinations
- Electronic quality verification
- Hardness testing and surface analysis
- Scanning Electron Microscope (SEM)

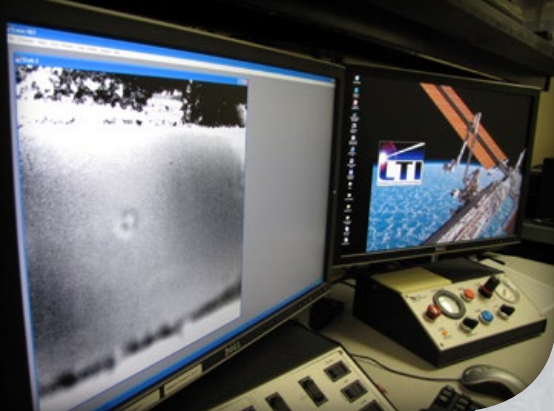
- Optical comparator measurements to .0005 of an inch
- Surface analyzer system to determine roughness average Ra, Rq, Ry, and Rz
- External digital micrometers to within .0001
- Internal analog 3 point micrometers to within .0002

TYPE IIA LAB



SCANNING ELECTRON MICROSCOPY (SEM)





NDI PROGRAM



40-FOOT × 25-FOOT COMPUTED TOMOGRAPHY



NDI COMPOSITE SUPPORT



EDDY CURRENT CAPABILITIES FOR WHEELS

NONDESTRUCTIVE INSPECTION

- Micro-focus real time radiography for in-motion inspection
- X-ray film digitizer for digitization of analog film
- MAUS IV system: mobile automated ultrasound and eddy current
- Real time enhanced large component x-ray bay (40 feet × 25 feet × 10 feet)
- Tier 1 low observable testing: Very High Frequency (VHF) probe and Low Observable Material Inspection System (LOMIS)
- Large computed tomography including 15 Million Electron Volts (MEV) and 9 MEV systems
- Mobile ultrasonic, eddy current, fluorescent dye penetrant, and fluorescent magnetic particle capability
- Computed Ultrasonic System (CUSS) V: 9 axis programmable
- Laser shearography
- Ultrasound
- Radiography
- Thermography
- Portable shearography

RADAR CROSS SECTION (RCS) FACILITY



RADAR CROSS SECTION (RCS) FACILITY

- Measurement of radar detectability
- Secure facility large enough to scan an entire aircraft





DC, AC, AND FREQUENCY
MEASUREMENTS



REPAIR AND CALIBRATION

PRECISION MEASUREMENT EQUIPMENT LABORATORY (PMEL)

- Administration of the Air Force Metrology and Calibration Program
- Maintenance of weapon system accuracies throughout system and equipment lifecycle
- Repair, calibration, and certification test of measurement and diagnostic equipment for:
 - Aircraft
 - Compass transmitter test sets
 - Crash damage assessment
 - Guidance systems
 - Airborne radar systems
 - Missiles
 - Guided bombs
 - Other unique workloads
- Support of workloads in isolated locations
- PMEL Organic Lab provides on-site calibration for:
 - Test stations used for intermediate and final functional testing of assets
 - Non-portable Test Measurement and Diagnostic Equipment (TMDE)
- Peculiar TMDE in the following categories:
 - Proprietary TMDE
 - One-of-a-kind TMDE that differs significantly from common TMDE in length or difficulty of calibration or TMDE requiring special training
- Commercial off-the-shelf TMDE no longer commercially supported
- Equipment critical to a one-of-a-kind test stand or production line
- Equipment embedded in test stands that is time prohibitive to remove

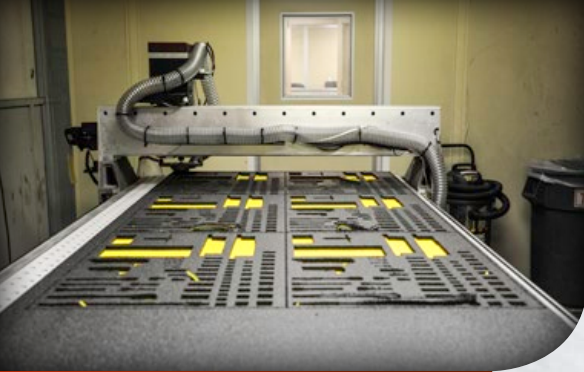
PMEL is the one, single foundational element of each and every item produced at the Ogden Air Logistics Complex. No item leaves this complex that PMEL hasn't touched in some way, either directly or indirectly.

TYPE IIA LAB



MICROWAVE AND
ATE ELECTRONICS





TOOL CONTROL PROGRAM



REPAIR AND CALIBRATION

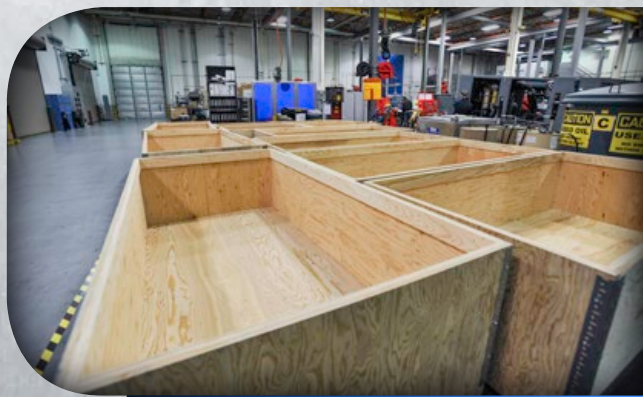
SUPPORT FOR YOUR INDUSTRIAL SERVICES REQUIREMENTS

Facility Engineering and Plant Management

- New facility and equipment improvements
- MILCON projects and space utilization
- Facility repairs and modernization
- Depot capacity analysis
- Energy conservation program
- Equipment installation and relocation
- Plant equipment modifications
- Real property maintenance and repair
- Lifting device inspection and repair
- Hazardous material management
- Equipment services via contract
- Equipment maintenance
 - Preventative maintenance
 - Predictive analysis
 - Condition based maintenance

Pattern and Wood Capability

- Stretch-wrap tooling and Foam blocks
- Drop hammer dies
- Magnolia castings
- Splash molds and Fiberglass molds
- Floor boards
- Shipping and storage crates
- Patterns and Stencils
- Signs and Banners
- Decals
- IUID Labels
- 2D Data Matrix
- Metal Data Plates



SHIPPING CRATES

Organic Tool Control Program

- Special tools
- Advanced foam cutter

C O N T A C T I N F O R M A T I O N

Maintenance Support Group

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